A MODELING APPROACH TO COLLABORATIVE FOREST MANAGEMENT

By

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ABSTRACT

HERRY PURNOMO.  A Modeling Approach to Collaborative Forest Management. Under the direction of Rudy C. Tarumingkeng, Endang Suhendang, Dudung Darusman, Mohammad Syamsun and Upik Rosalina.

A successful sustainable development strategy requires that forest management be carried out in a participatory way. This includes the involvement of local communities. The importance of communities’ participation has been written into Indonesian Law No. 41 on Forestry (1999). However, how this law can be implemented in areas already allocated to a concession holder is still unclear. The state-owned company, Inhutani II Sub Unit Malinau, has managed a forest area in Malinau District, East Kalimantan for over 10 years. Forest-dependent communities located in the managed area were Long Seturan, Long Loreh and Langap villages. The company managed the area based on plans approved by the local and central governments. They established permanent sample plots for measuring the stand growth and yield data in their area, and were asked to improve the well-being of local communities. However, the schemes did not give the company sufficient space to manage the area creatively, or provide a systematic way to involve the communities in the management of the forest.

This research was aimed at seeking scenarios of sustainable forest management (SFM) that addressed the above limitations. To reach this aim, two research hypotheses were proposed:

1. Local forest stakeholders can define their own SFM Criteria and Indicators (C&I) for specific sites where they live, or that concern them;
2. Collaborative management of forests by all relevant stakeholders will achieve better forest management outcomes.

An artificial society of primary forest actors was built using a multi-agent system approach, used for developing scenarios to increase the sustainability of forest management. Indicators of forest cover and standing stock, communities’ incomes, company revenue and taxes paid to local and central governments measured the sustainability.

The research results showed that local communities that lived in the area of Inhutani II were able to define C&I of SFM. The local C&I are not different from the generic or scientific C&I of SFM. However, these C&I are formulated with different structures and argumentations. The developed knowledge-based system found a way to harmonize this knowledge. Collaboration between concessionaires and the communities appeared to be the most suitable alternative for SFM - particularly for improving communities’ incomes without decreasing the quality of the forest. An appropriate decentralization policy is a condition for implementing collaborative forest management.
LETTER OF STATEMENT

I herewith declare that the dissertation entitled “A Modeling Approach to Collaborative Forest Management” is purely my work with the supervision of the advisory committee. This dissertation has never been submitted to other universities to get a similar degree. All data and information sources have been stated clearly in the document and their correctness can be checked.

Bogor, 6 May 2003

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In the year 2002, as a senior author, he submitted five different scientific papers to international journals. Two papers entitled “Multi-agent Simulation of Alternative Scenarios of Collaborative Forest Management” and “Collaborative Modelling to Support Forest Management: Qualitative Systems Analysis at Lumut Mountain, Indonesia” will be published in the Journal of Forest Small Scale Economics, Management and Policy, in the year 2003. The other three papers are in the reviewing processes.
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LIST OF TABLES

Table 2.1. The differences between scientific and indigenous or traditional knowledge (Walker 1994) .......................................................... 14
Table 3.1. Villages inside Inhutani II boundary ................................................... 37
Table 3.2. Presence or absence indicator of each knowledge type ................... 38
Table 4.1. The generic knowledge of ecological criteria for SFM ..................... 53
Table 4.2. The generic knowledge of economical criteria for SFM ................. 55
Table 4.3. The generic knowledge of social criteria for SFM ............................ 57
Table 4.4. The generic knowledge of SFM ......................................................... 57
Table 4.5. A comparison of the developed C&I with the ITTO’s C&I ............... 59
Table 4.6. A comparison of the developed C&I with FSC’s P&C ............. 61
Table 4.7. A comparison of the developed C&I with the Montréal Process C&I ... 63
Table 4.8. A comparison of developed C&I with Finnish C&I ..................... 64
Table 4.9. A comparison of the developed C&I with ATO’s C&I .................... 66
Table 4.10. Generic C&I and their types ......................................................... 69
Table 4.11. Summary of C&I comparison and their categories ....................... 70
Table 4.12. Revised Generic C&I ................................................................. 72
Table 4.13. Supernatural indicators of good forest management, as identified by the local communities ........................................ 81
Table 4.14. Policy indicators of good forest management, as identified by the local communities ..................................................... 81
Table 4.15. Socio-economic indicators of good forest management, as identified by the local communities .................................. 82
Table 4.16. Biophysical indicators of good forest management, as identified by the local communities ............................................... 83
Table 4.17. The knowledge comparison between scientific and local knowledge ............................................................... 84
Table 4.18. Falsification of supernatural generic indicators ............................... 87
Table 4.19. Falsification of policy generic indicators ........................................ 87
Table 4.20. Falsification of socio-economic generic indicators ....................... 88
Table 4.21. Falsification of biophysical generic indicators ................................. 89
Table 4.22. The hierarchy of nodes ................................................................. 93
Table 4.23. Stakeholder identification using “Who Counts” matrix ............... 98
Table 4.24. The stakeholders’ characteristics and their primary identified goals ........................................................................................................ 100
Table 4.25. The stakeholders’ primary activities ............................................... 100
Table 4.26. Budget projection of Inhutani II (in thousand rupiah) .................. 106
Table 4.27. Sequence diagram of agent interactions ....................................... 107
Table 4.28. Local communities’ response to events ...................................... 109
Table 4.29. Forest Cover of Inhutani II year 1991 ...................................... 116
Table 4.30. Landsat image interpretation and simulation results on ............ 117
Table 4.31. Average number of trees per Ha of pristine forest stand before logging .......................................................................................... 120
Table 4.32. Stand structure Dynamics Components (Septiana, 2000) ........... 121
Table 4.33. Number of trees per Ha of pristine forest stand before logging after logging .................................................................................. 122
Table 4.34. Simulation result of the revenue, cost and net revenue (in million rupees) .............................................................................. 124
Table 4.35. The timber production of Inhutani II ......................................... 126
Table 4.36. The difference between the actual net revenue and its plan ....... 126
Table 4.37. Regulations applied to concession holders................................. 130
Table 4.38. Amount of money paid by concession holders .......................... 131
Table 4.39. The overall model evaluation .................................................... 133
Table 4.40. Criteria for collaborative timber harvesting from the perspective of two parties................................................................. 136
Table 4.41. Simulation outputs as biophysical indicators of the model .......... 139
Table 4.42. Simulation outputs (In million rupiahs per year) as economic indicators of the model under the collaborative scenario ............. 140
Table 4.43. Scenarios examined using simulation......................................... 143
Table 4.44. The simulation outputs for non-collaboration and scenario A...... 144
Table 4.45. The simulation outputs for non-collaboration and scenario B..... 145
Table 4.46. The simulation outputs for non-collaboration and scenario C...... 146
Table 4.47. Sign Test for median of simulation outputs of different scenarios. 147
Table 4.48. SFM indicators of Scenario B of collaborative management....... 149
LIST OF FIGURES

Figure 2.1. Conceptual framework for sustainability assessment ........................ 9
Figure 2.2. Normative and scientific aspects of sustainability (modified from Becker 1997) .............................................................. 10
Figure 2.3. The stakeholders conceptualized components (in box) and their perceived categories (in italic) of “good forest management” (Kearney et al. 1999) ........................................................................................................ 12
Figure 2.4. The general architecture of a knowledge base system ......................... 13
Figure 2.5. Model of a fuzzy system (Panigrahi 1998) ............................................. 16
Figure 2.6. Qualitative and quantitative reasoning (Guerinn 1991) ....................... 17
Figure 2.7. Perception and action subsystems (Weiss 1999) ................................ 18
Figure 2.8. Agents that maintain state (Weiss, 1999) ............................................. 19
Figure 2.9. Schematic diagram of a generic belief-desire-intention architecture (Weiss 1999) ........................................................................................................ 20
Figure 2.10. Coordination among agents (Ossowski 1999) .................................... 21
Figure 2.11. Comparison in methods of problem solving (modified from Holling 1978, and Starfield and Bleloch 1988 in Grant et al., 1997) ....................... 22
Figure 3.1. The research sequence ..................................................................... 28
Figure 3.2. P, C & I concept for sustainable forest management assessment .. 32
Figure 3.3. A network of C&I for sustainable forest management assessment .. 33
Figure 3.4. Relationship of conditions and indicators of sustainability ............... 35
Figure 3.5. The four principle activities in the creation of knowledge base (Walker et al. 1994) ........................................................................................................ 39
Figure 3.6. KBS inference engine ........................................................................ 40
Figure 3.7. An example of model components and their interaction located in the spatial system ......................................................................................... 41
Figure 3.8. Spatial representation of the firm’s activities and the movement of villagers ...................................................................................................... 42
Figure 3.9. Communication among forest stakeholders .................................... 42
Figure 4.1. Organization of a forest .................................................................... 48
Figure 4.2. A model of a forest ........................................................................... 50
Figure 4.3. Original and new functions of forests due to management ............. 50
Figure 4.4. Trade-off situation faced by forest managers ............................... 51
Figure 4.5. The synergy situation faced by forest managers ......................... 52
Figure 4.6. Number of stems and diameter class relationship ......................... 54
Figure 4.7. Learning mechanisms of stakeholders ............................................. 56
Figure 4.8. Swidden agriculture activities ......................................................... 76
Figure 4.9. A typical village with its swidden agriculture (j is jekau) ............. 77
Figure 4.10. The KBS architecture ................................................................. 91
Figure 4.11. Network of nodes that represent criteria and indicators ............... 92
Figure 4.12. The argumentation process ......................................................... 93
Figure 4.13. The relation between nodes .......................................................... 94
Figure 4.14. Assessment process ................................................................. 95
Figure 4.15. The architecture of the simulation model .................................. 103
Figure 4.16. Main menu of “Forest Actors” .................................................. 112
Figure 4.17. The situation map of study area in 1991 .................................. 113
Figure 4.18. The communication observer .................................................... 114
Figure 4.19. The example of simulation output diagrams ......................... 115
Figure 4.20. The FMU vegetation after eight years simulation ................. 117
Figure 4.21. Diagram of vegetation areas after eight year's simulation time.... 118
Figure 4.22. Pristine forest stands structure...................................................... 121
Figure 4.23. Number of trees per Ha of pristine forest stand before logging after ..................................................... 122
Figure 4.24. The simulation result of standing stock for 20 years .................... 123
Figure 4.25. Simulation result diagram of the revenue, cost and net revenue. 124
Figure 4.26. Diagram of the difference between the actual net revenue and its plan .............................................................................................................. 127
Figure 4.27. The income per household (in rupiahs), showing the communities’ products at fixed price in the year 2000. .................................................... 129
Figure 4.28. The income per household (in rupiahs) using the communities’ product prices in the year 2000, with 10 % inflation .................................... 129
Figure 4.29. Simulation results of financial payments........................................ 132
Figure 4.30. A social phenomenon of collaboration.......................................... 135
Figure 4.31. Development of collaboration scenarios........................................ 136
Figure 4.32. The simulation map showing results of non-collaborative and collaborative management ................................................................. 141
Figure 4.33. Nine different simulation outputs of the best scenario (Scenario B). The collaboration area is black................................................................. 148
Figure 5.1. Plausible connections in a decentralization policy that.................... 154
Figure 5.2. Influences of a selected decentralization policy.............................. 158
LIST OF APPENDICES

Appendix 1. Interview guide of local knowledge on forest management......... 172
Appendix 2. List of criteria and indicators from internationally recognized....... 173
Appendix 3. The screen shows of the implementation of the built KBS .......... 195
Appendix 4. The selected stakeholders’ characteristics ................................. 201
Appendix 5. Digital maps used in the simulation............................................. 203
Appendix 6. Costs and revenues of Inhutani II ............................................ 207
Appendix 7. The Smalltalk codes of the communities’ reasoning and .......... 211